

REMARKS

As a preliminary matter, Applicants appreciate the Examiner's indication of allowable subject matter contained in claims 4-5, 7-8, 11, and 13. These claims are rewritten in independent form, and therefore allowance of these claims is respectfully requested.

Claims 1-2, 6, 9-10, and 14 stand rejected under 35 U.S.C. 102(b) as being anticipated by Akiyama (U.S. Patent No. 6,278,426). In response, Applicants amended independent claim 1 to further clarify that the voltage of the same polarity that is applied to the liquid crystal material through the switching elements a plurality of times occurs continuously within one frame or one sub-frame, and respectfully traverse the rejection as it applies to the amended claim.

In the Office Action, the Examiner asserts that Akiyama teaches that voltages are applied to a liquid crystal material a plurality of times at column 10, lines 8-19. However, Akiyama teaches that a positive voltage is repeated several times, and then a negative voltage is repeated for several fields. Akiyama does not teach or suggest applying positive/negative voltage alternatively to the liquid crystal layer for each of the fields.

In contrast, the present invention now defines applying voltage of a same polarity to the liquid crystal material a plurality of times continuously within one frame or one sub-frame. As discussed in Applicants' specification on page 8, lines 5-13, when the voltage of the same polarity is applied over one frame or sub-frame, a high-speed

responsiveness of the liquid crystal having spontaneous polarization deteriorates, and therefore the responsiveness deteriorates in the case of a color filter method, or mixture of colors occurs in the case of a field-sequential method. Advantageously, the present invention applies voltage of the same polarity a plurality of times within one frame or one sub-frame. (See Applicants' specification pg. 26, lns. 2-12). Since Akiyama fails to disclose or suggest applying a voltage of a same polarity within one frame or one sub-frame, withdrawal of the §102 rejection of claims 1-2, 6, 9-10, and 14 is respectfully requested.

Claims 3, 12, and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama in view of Nakanowatari (U.S. Patent No. 4,773,716). In response, Applicants amended claim 12 similar to claim 1, and traverse the rejection for the reasons recited above and also because there is no motivation to combine the references.

The Examiner acknowledges on page 4, third paragraph of the Office Action that Akiyama does not disclose a switching unit for switching between first and second modes, wherein a voltage of a same polarity is applied to the liquid crystal material through the switching elements a plurality of times continuously within one period. Applicants respectfully submit that Akiyama further does not disclose switching between first and second modes wherein a voltage of the same polarity is applied within one frame or one sub-frame.

The Examiner asserts that Nakanowatari teaches a first mode in which voltage of the same polarity is applied to a liquid crystal material through switching elements a plurality of times continuously within one period, and also a second mode in which voltage of the same polarity is applied to the liquid crystal material through the switching elements once within the one period (see FIG. 2 and col. 3, lns. 50-60 of Nakanowatari). Applicants respectfully traverse this statement of the Examiner.

The cited portion of Nakanowatari merely describes that a measurement is performed for a pulse width and a pulse peak value on an exemplary voltage application. However, Nakanowatari relates to a liquid crystal display of a simple matrix type, whereas the present invention relates to a liquid crystal display of an active matrix type in which a switching element is provided for each pixel. Accordingly, Applicants respectfully submit that one skilled in the art would not apply the voltage application shown in Nakanowatari for a simple matrix type liquid crystal display to an active matrix type liquid crystal display, and therefore there is no motivation to combine the references, contrary to the assertion of the Examiner. For these reasons, Applicants respectfully request withdrawal of the §103(a) rejection of claims 3, 12, and 17.

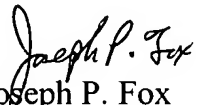
Claims 15-16 and 18-19 stand rejected under §103(a) as being unpatentable over Akiyama, and further in view of Nakanowatari and/or Shigeta (U.S. Patent No. 6,972,777). In response, Applicants traverse the rejection for the reasons recited above with respect to the §103 rejection of independent claim 12.

Since claims 15-16 and 18-19 ultimately depend upon claim 12, they necessarily include all the features of their associated independent claim plus other additional features. Thus, Applicants submit that the §103 rejections of these claims have also been overcome for the same reasons as mentioned above to overcome the rejection of independent claim 12, and also because Shigeta fails to overcome the deficiencies of Akiyama and Nakanowatari. Applicants respectfully request that the §103 rejections of claims 15-16 and 18-19 also be withdrawn.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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